

**WHAT IS CLAIMED:**

1. A modem comprising:  
 a signal detector adapted to receive a signal, the signal including a data  
 component and one or more echo components;  
 a timing unit adapted to identify delays of said one or more echo components;  
 and  
 an echo cancellation unit adapted to cancel one or more echoes once said  
 delays have been identified.

2. A modem in accordance with claim 1, said data component comprising  
 a sinusoid at a predetermined frequency.

3. A modem in accordance with claim 2, said echo signals comprising  
 signals at substantially said predetermined frequency and at differing amplitudes.

4. A modem in accordance with claim 3, said timing unit adapted to  
 identify said delays by determining periods between peaks of said data component  
 and said one or more echo components.

5. An echo cancellation method, comprising:  
 transmitting a training sinusoid to a remote modem;  
 receiving a return signal, said return signal comprising said training sinusoid  
 and one or more echo signals having substantially the same frequencies as said  
 training sinusoid; and  
 identifying echoes by determining delays between peaks of said return  
 training sinusoid and peaks of said one or more echo signals.

6. An echo cancellation method according to claim 5, further comprising:  
 canceling echoes based on said delays.

7. An echo cancellation system, comprising:  
 means for transmitting a training sinusoid to a remote modem;

responsive to said transmission comprising said training signals at the same frequency responsive to said received signals between peaks of said signals.

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$\text{SUBA}^1$

Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	

1        11.    A method in accordance with claim 10, said echo signals comprising  
2 signals at substantially said predetermined frequency and at differing amplitudes.

1           12. A method in accordance with claim 11, including identifying said delays  
2 by determining periods between peaks of said data component and said one or more  
3 echo components.